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October 24, 1997

Mr. William F. Caton  
Acting Secretary  
Federal Communications Commission  
1919 M Street, N.W. Room 222  
Washington, D.C. 20554

RE: CC Dockets 96-45/ and 97-160

RECEIVED  
OCT 24 1997  
FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

Dear Mr. Caton,

On October 23, 1997, a meeting was held between Laska Schoenfelder, a member of the Joint Board in the above matter and Charlie Bolle, a state staff member in the above matter and representatives of the joint sponsors of the Benchmark Cost Proxy Model (BCPM). Representing the BCPM joint sponsors were Glenn Brown, Barb Allgaier, and Jon Lehner of U S WEST and Mark Askins of Sprint.

Information on the attached pages was discussed during the meeting. This notice is being filed today since the meeting was held in Pierre, South Dakota and ended during the afternoon of October 23.

The BCPM joint sponsors request that this information be placed in the record in this matter. In accordance with Commission Rule 1.1206(a)(1), the original and three copies of this notice is being filed with your office. If there are any questions, please call.

Sincerely,

Warren D. Hannah

Attachments

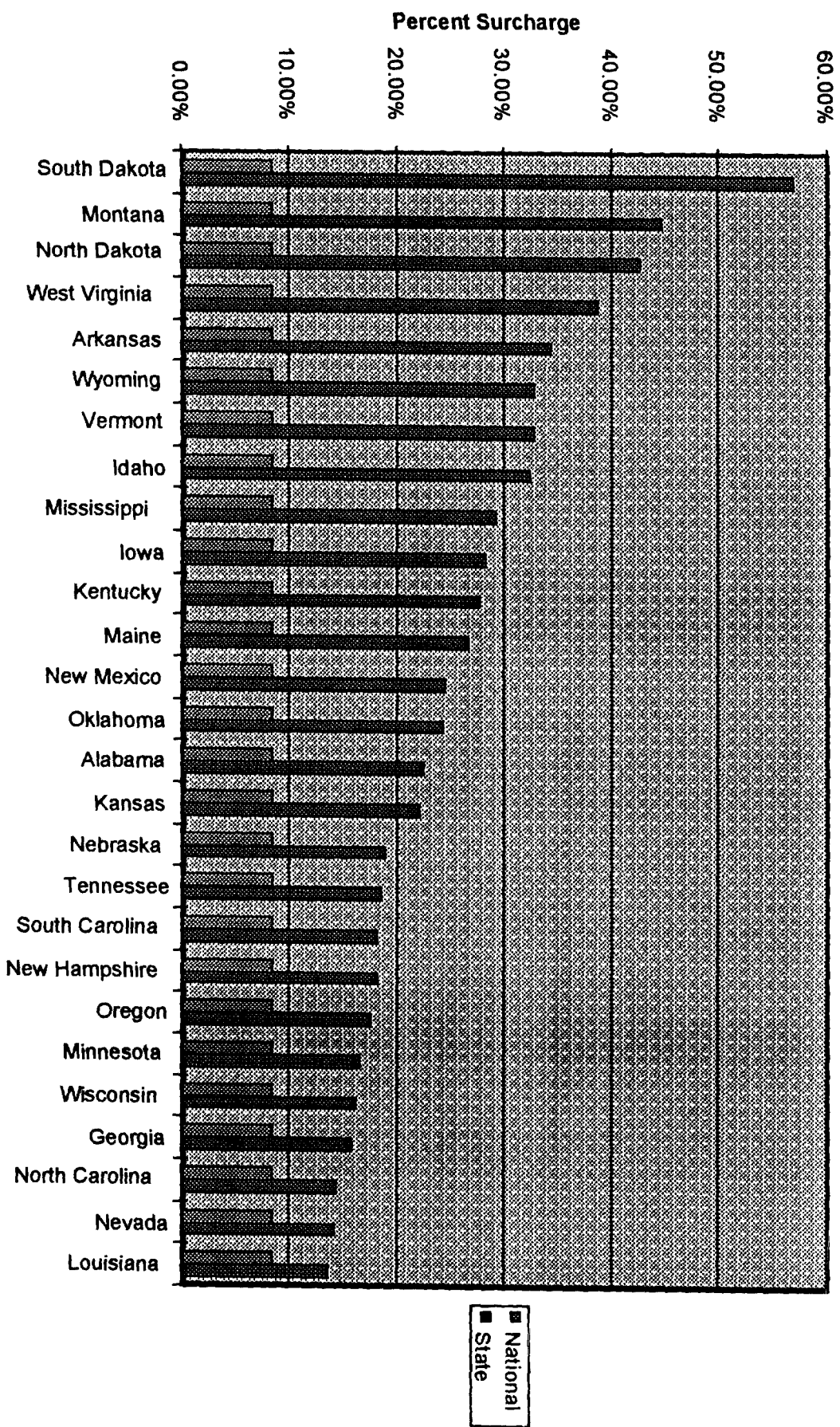
c: Attendees

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# State vs. National Fund (1 of 2)

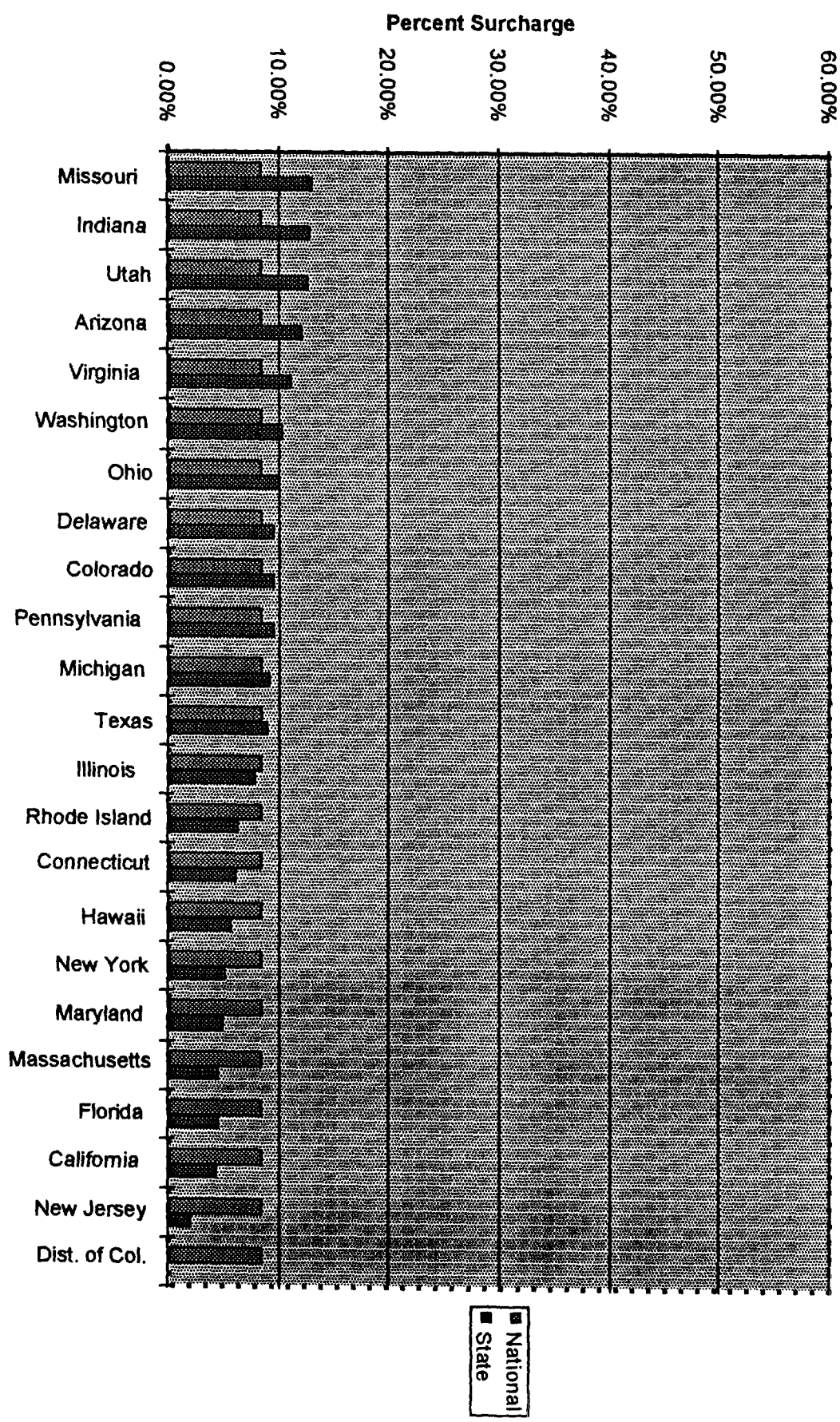
(Assumes \$13.7B Fund - BCPM @ \$30)



NOTE: Under the separate surcharges alternative, customers in all states would pay a 5.0% surcharge on all interstate services.

# State vs. National Fund (2 of 2)

(Assumes \$13.7B Fund - BCPM @ \$30)



NOTE: Under the separate surcharges alternative, customers in all states would pay a 5.0% surcharge on all interstate services.

**BCPM2**

# **BCPM, Version 2**

Enhancements to the

**Benchmark**

**Cost**

**Proxy**

**Model**

Pierre, South Dakota October 23rd, 1997

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# BCPM2

## What the BCPM2 Does!

- It does estimate the costs that would be incurred by an efficient local provider serving the entire market.
- It does assume state-of-the-art technology, in certain cases more advanced than what currently is used.
- It does work! The network constructed by the model functions and meets the FCC criteria.

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# BCPM2

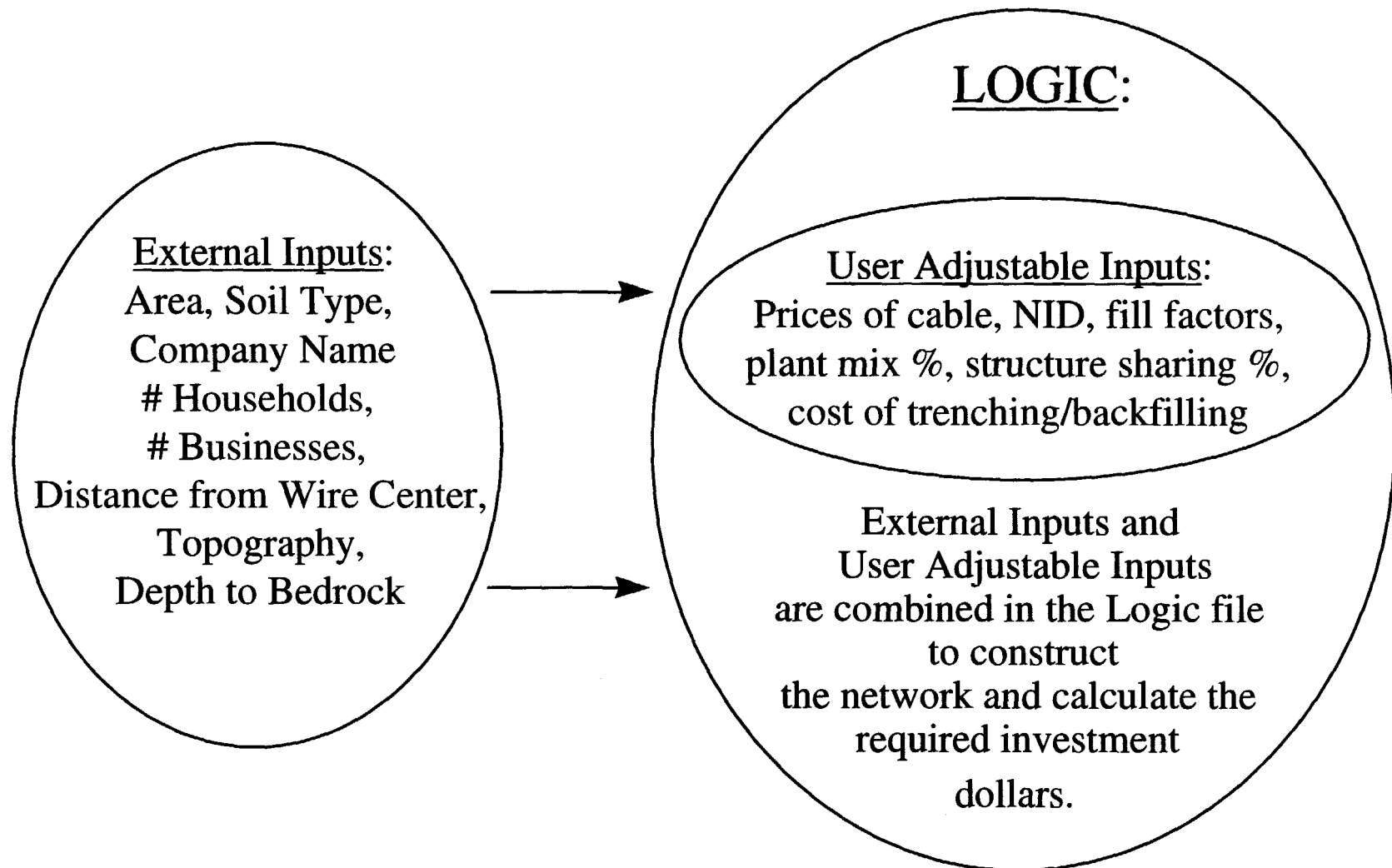
## What the BCPM2 Doesn't Do!

- It does not reproduce the costs incurred by any existing provider.
- It does not replicate the network layout as it exists today.
- It does not (necessarily) use the same materials used in the network today.
- In its preliminary form it does not estimate the costs of unbundled network elements.

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# BCPM2

## Flow of Information



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# BCPM2

## Flow of Information (cont.)

How the LOGIC file works:

User Adjustable Inputs and External Inputs are combined in a series of If/Then statements and mathematical calculations.

These produce figures (output) on the initial investment required:

total length of feeder,  
total length of distribution,  
number of lines on copper,  
number of lines on small vs. large digital loop carriers  
number of ducts or poles or manholes  
investment dollars for buried/underground/aerial  
for the specific area.



Next step is to turn investment dollars into monthly costs...

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# BCPM2

## Flow of Information (cont.)

### Cap Cost & Expense Module:

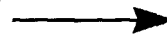
User Adjustable Inputs Set #2:  
return on equity, return on debt,  
depreciation lives,  
state/federal/other taxes  
future net salvage percentages

This module produces two key sets  
of information used to estimate  
monthly costs: annual  
charge factors and operating  
expenses.



### Annual Charge Factors:

Applied to the Investment  
Figures calculated earlier to  
turn investment into  
monthly costs.



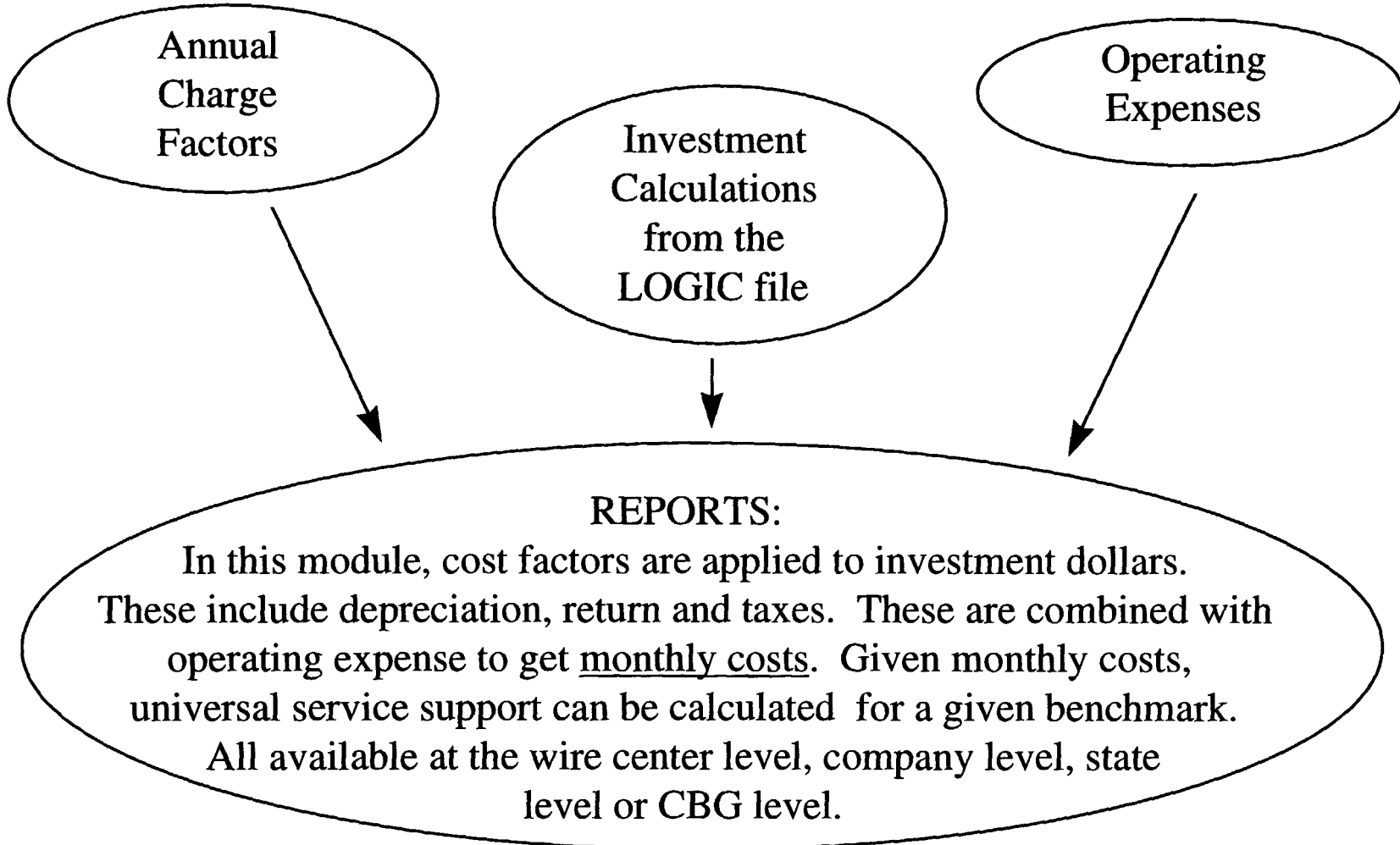
### Operating Expenses:

G&A, General Support,  
Marketing.  
These will become part of  
monthly costs.

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# BCPM2

## Flow of Information (cont.)



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# BCPM2

## Enhancements: BCPM to BCPM2

### New Data Source for Wire Center Boundaries

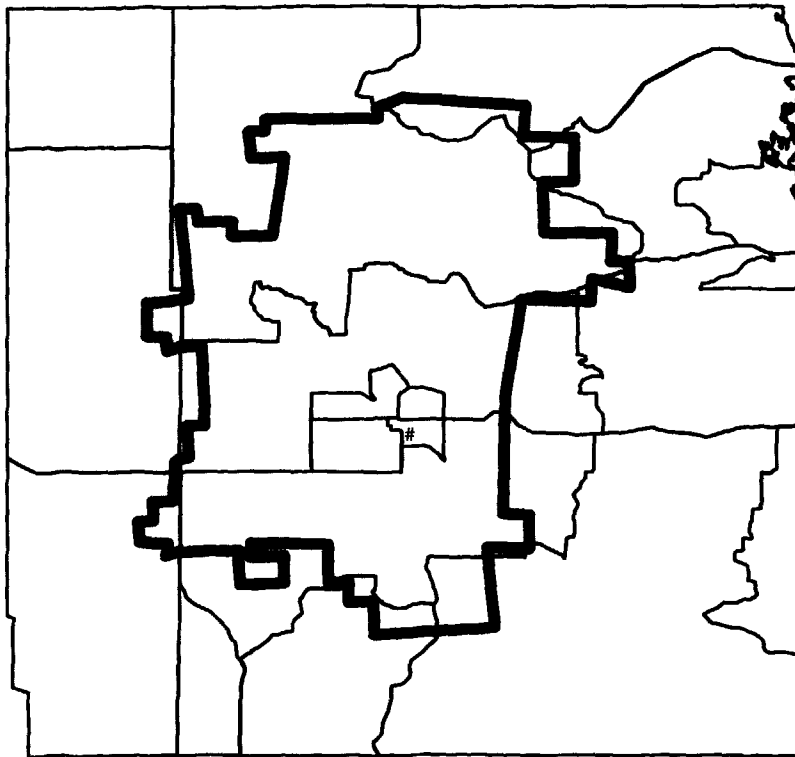
- Because costs vary greatly within a single wire center, cost estimation must occur below the wire center level.
- Accurate wire center boundaries are the key to measuring costs accurately.
- BLR boundary information is mapped to individual census blocks allowing for greater detail of analysis.
- Hatfield 4.0 (and BCPM1.1) map only to census block group level.

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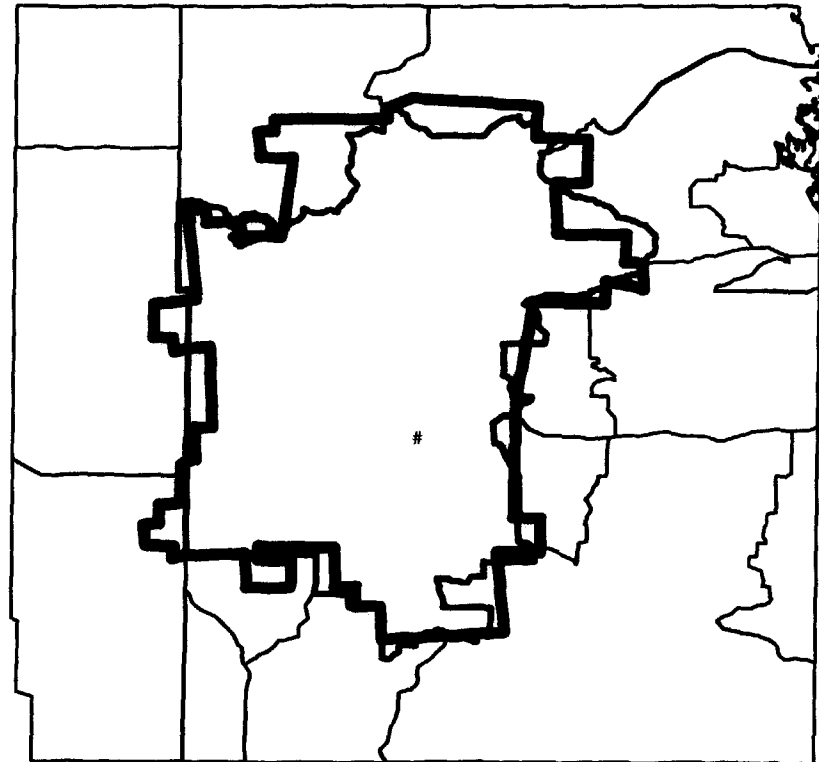
# BCPM2

## Example: Wire Center Boundary based on Census Blocks vs. Census Block Groups

- Actual Wire Center Boundary
- Representative Hatfield / BCPM1.1 Boundary



- Actual Wire Center Boundary
- BLR Boundary used in BCPM2



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# BCPM2

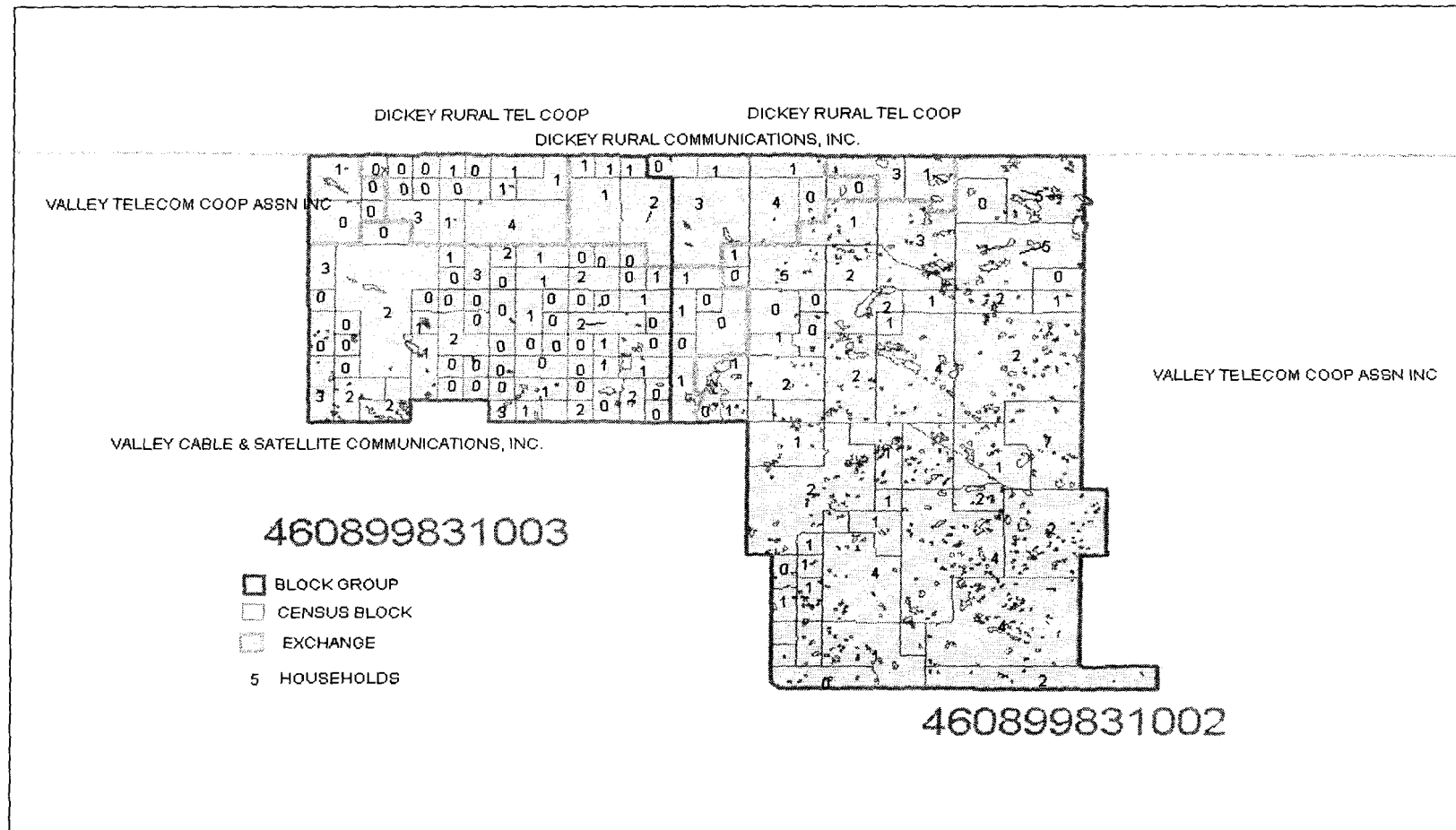
## Moving Below the CBG Level:

- Previously, entire CBG was mapped to a certain wire center and costs calculated.
- CBGs served by 2 or more wire centers were “assigned” only to one.
- Result: access line count was inaccurate, investment was misstated, and less than accurate costs resulted.
- Solution: new data source allows mapping of individual census blocks to wire centers, allows validation of access line counts, and yields more accurate cost estimates.

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# BCPM2

## CBG in northern Brown County



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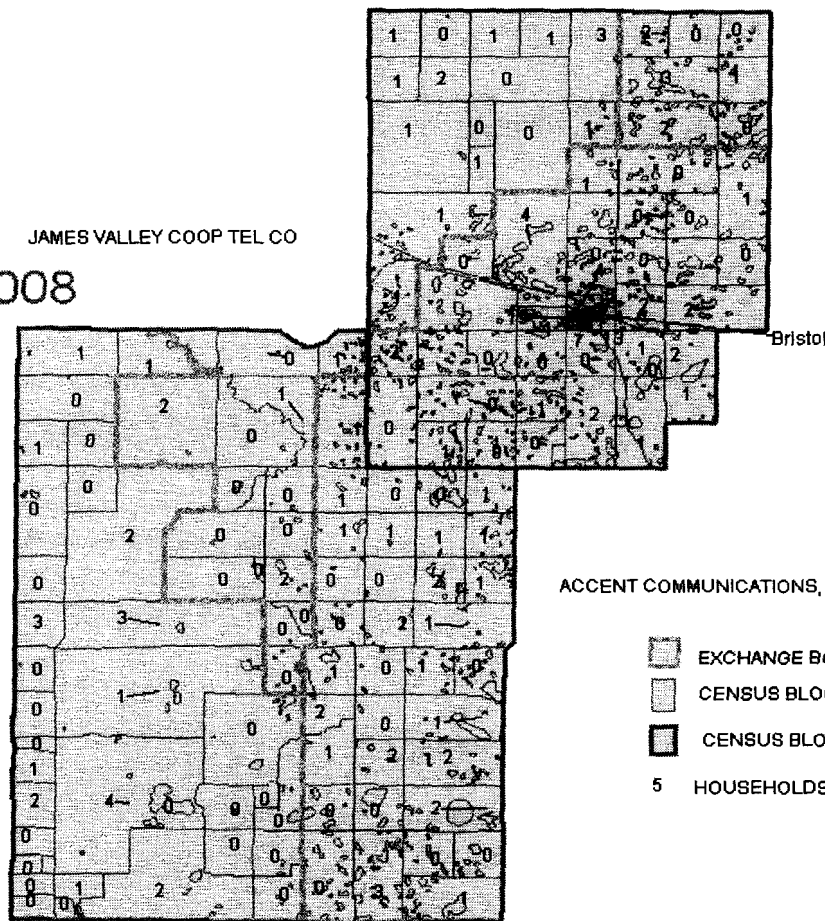
# BCPM2

## CBG east of Aberdeen

JAMES VALLEY COOP TEL CO  
460379527008

VENTURE COMMUNICATIONS, INC.

460379527005



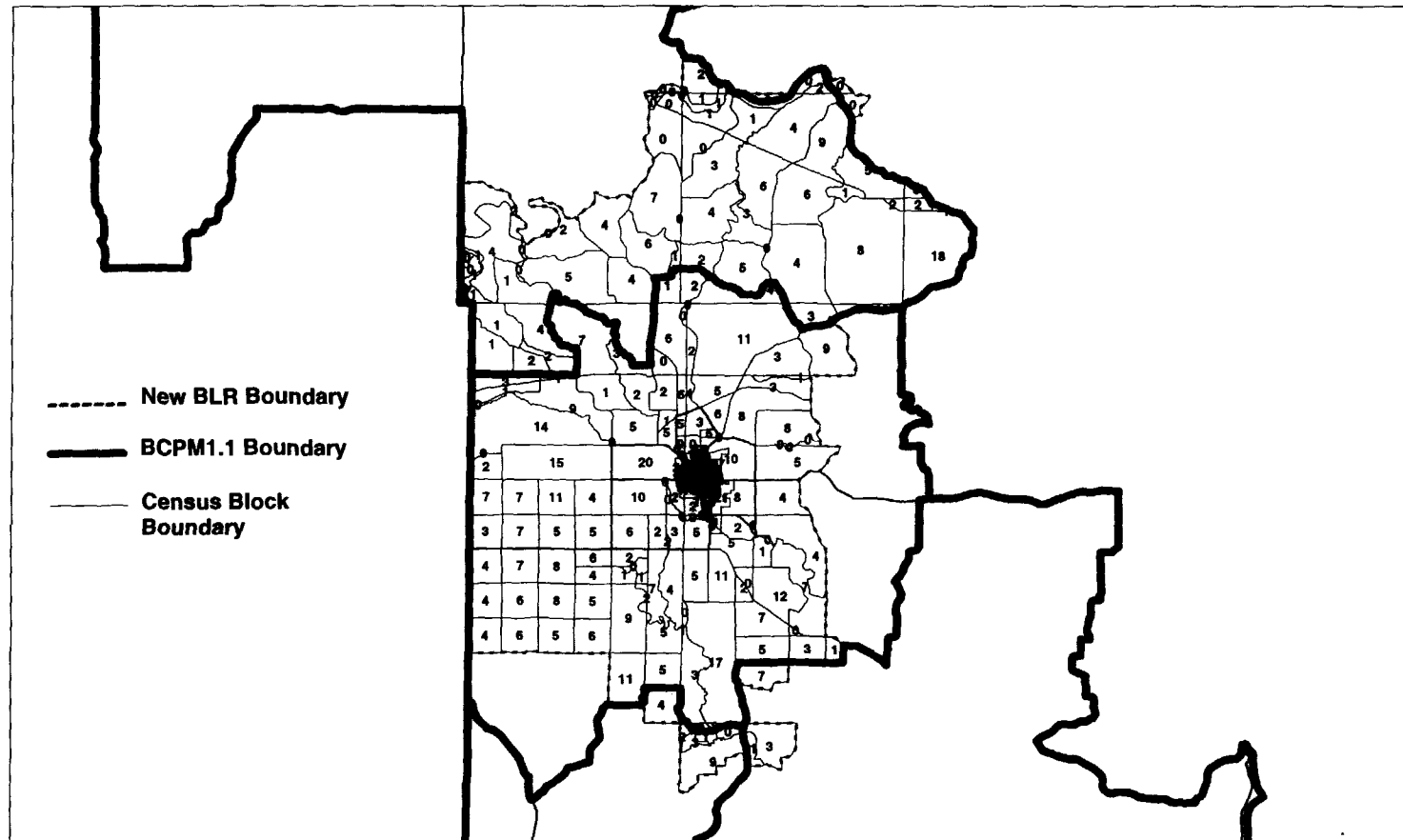
ACCENT COMMUNICATIONS, INC.

- EXCHANGE BOUNDARY
- CENSUS BLOCK
- CENSUS BLOCK GROUPS
- 5 HOUSEHOLDS

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# BCPM2

In this slide we see the individual census blocks that make up the wire center boundary and the incorrect boundary created when CBGs are used.



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# BCPM2

## Enhancements: BCPM to BCPM2

### Below the CBG Level in Rural Areas

- Previous Issue: standard assumption for network construction was customers uniformly distributed throughout CBG. This was inappropriate for rural areas.
- Previous approach: for CBGs with density  $< 5$  HH per sq mile,
  - reduce total CBG area to equivalent of 500 foot “buffer” along roads
  - assume all customers located within this new area, but still uniformly distributed
  - assume new area is square, build network as before
- Problem: did not eliminate enough vacant area; no accounting for existing clusters of rural customers.

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# BCPM2

## Enhancements: BCPM to BCPM2

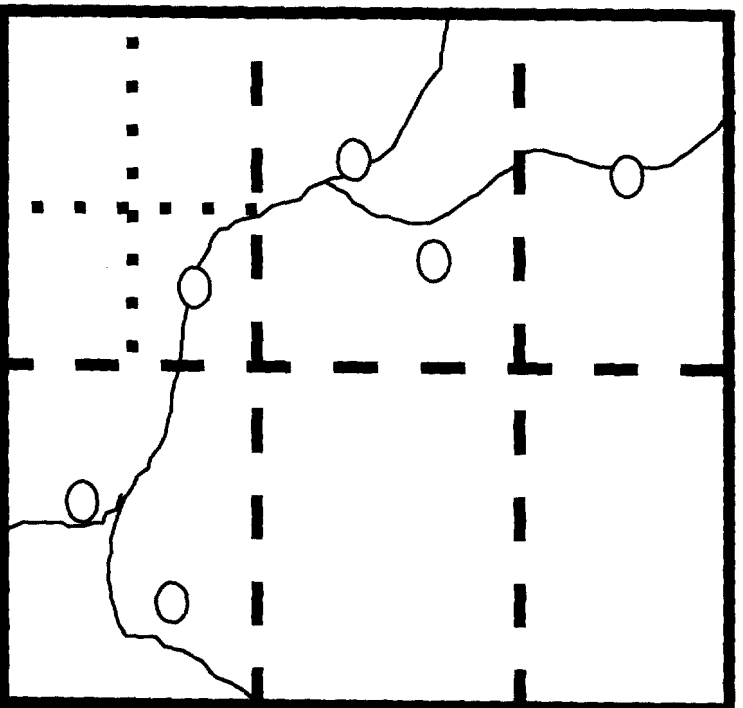
### Below the Rural CBG Level (cont.)

- New Approach: eliminate CBGs completely. Overlay the wire center with grids (1/25th to 1/200th degree).
- Eliminate areas with no population and no road miles.
- Reduce grid size further to target customer location.
- Assume population is distributed along road miles (validated econometrically).
- Result: new model builds to clusters of customers where they actually exist.
- Result: new model eliminates building plant to unpopulated areas.

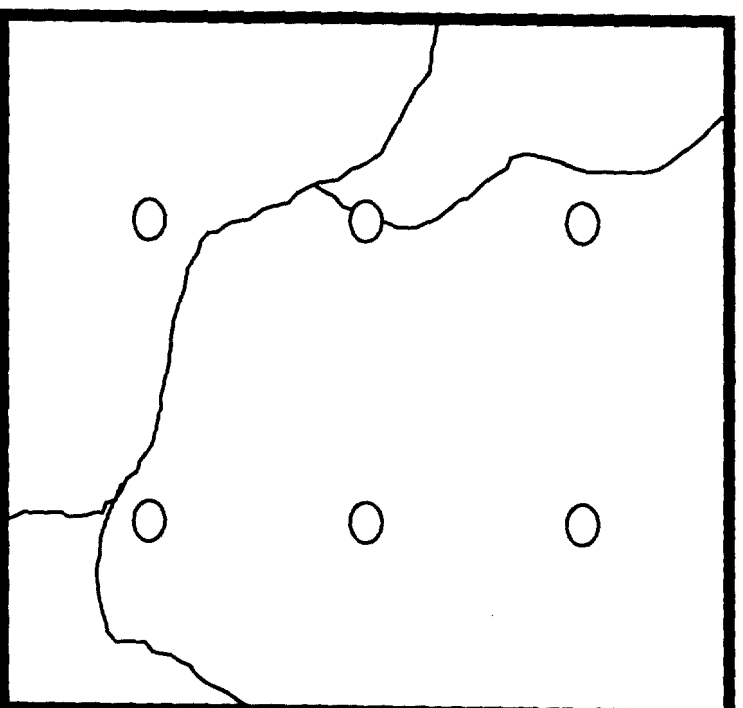
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# BCPM2

BCPM2



BCPM1.1

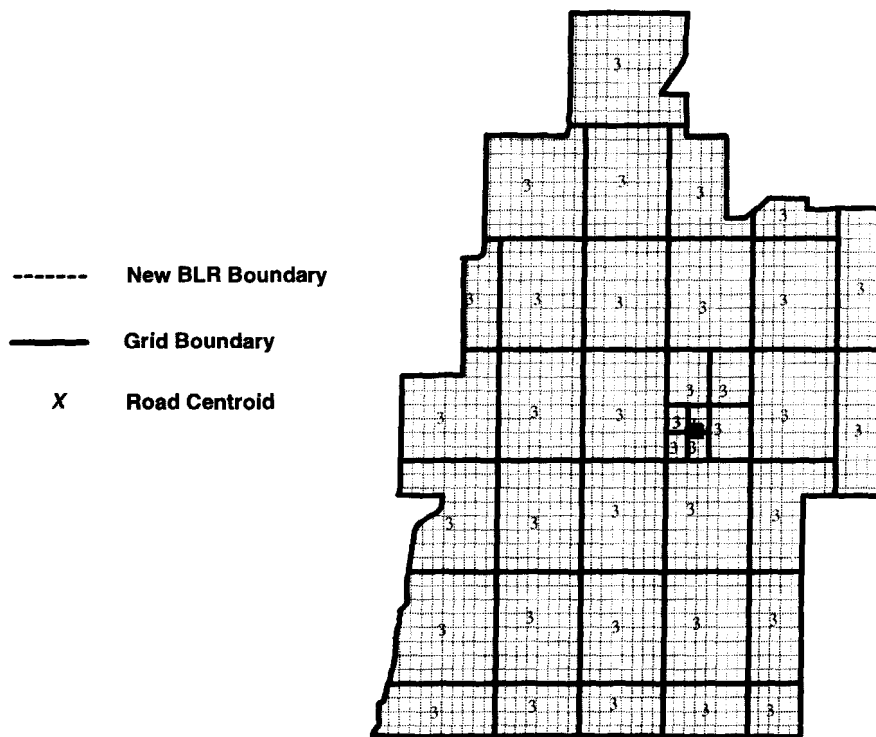


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# BCPM2

## Actual grids used to reflect engineering area constraints.

- Various sized grids applied to actual wire center. Road centroid will partition each grid into quadrants.



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# **BCPM2**

## **Enhancements: BCPM to BCPM2**

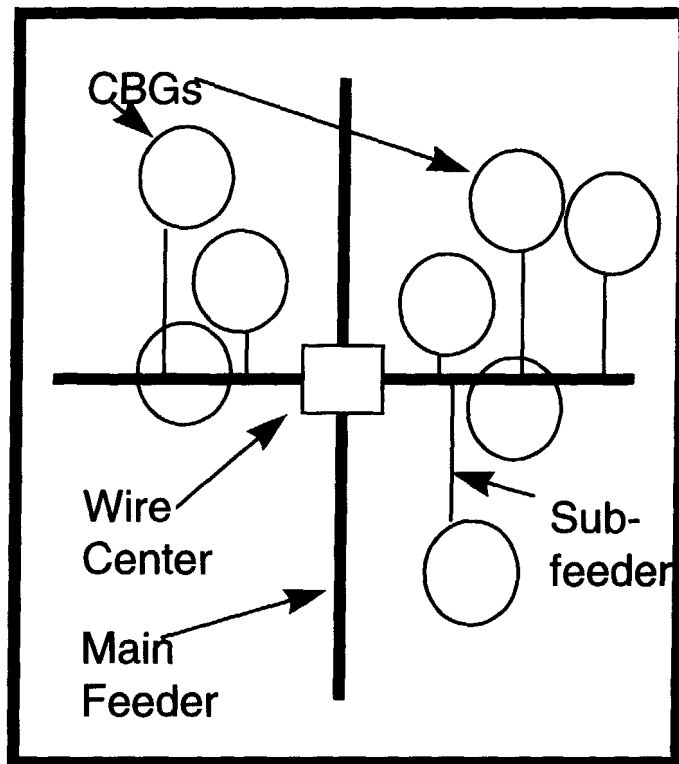
### **Tilting the Feeder to Target Engineering to Customer Locations**

- BCPM: network design set initial feeder legs at N-S-E-W, regardless of actual CBG location.
- Issue: not always appropriate for more distant CBGs where large amounts of subfeeder required.
- BCPM2 solution: allow feeder routes to “tilt,” targeting feeder at population, minimizing subfeeder.

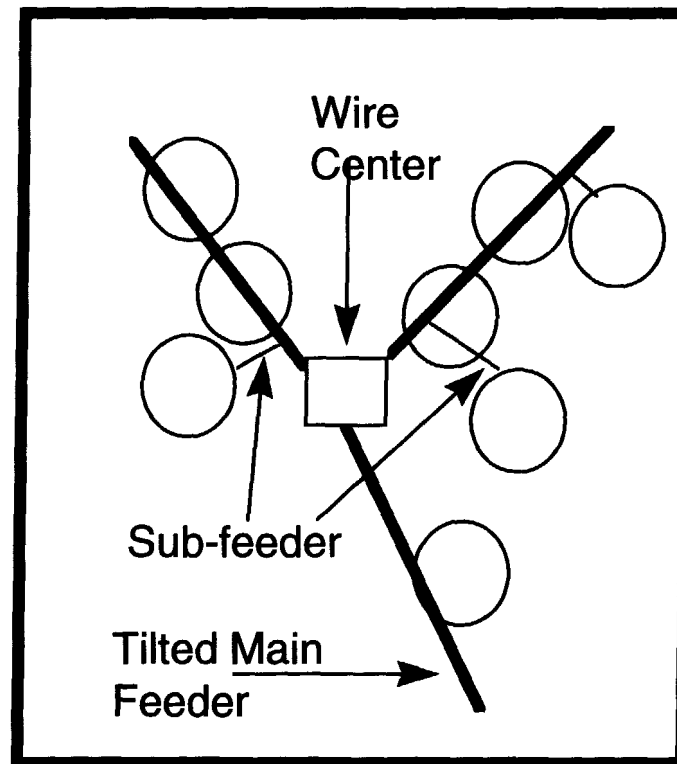
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# BCPM2

## BCPM1.1



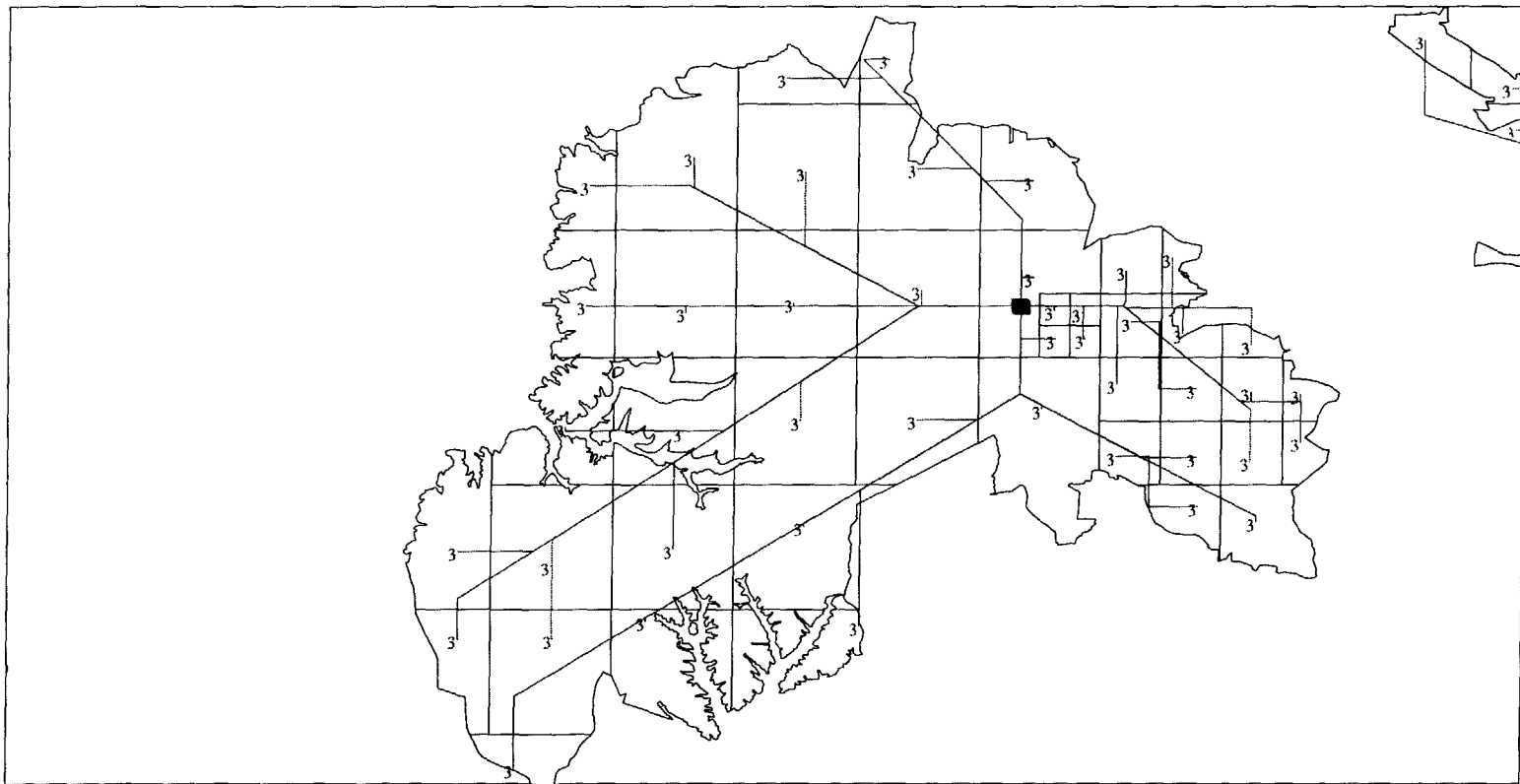
## BCPM2



# BCPM2

## Example of New Feeder Engineering

Tilting main feeder (creating a Y effect) in order to target feeder to actual customer locations within the wire center.

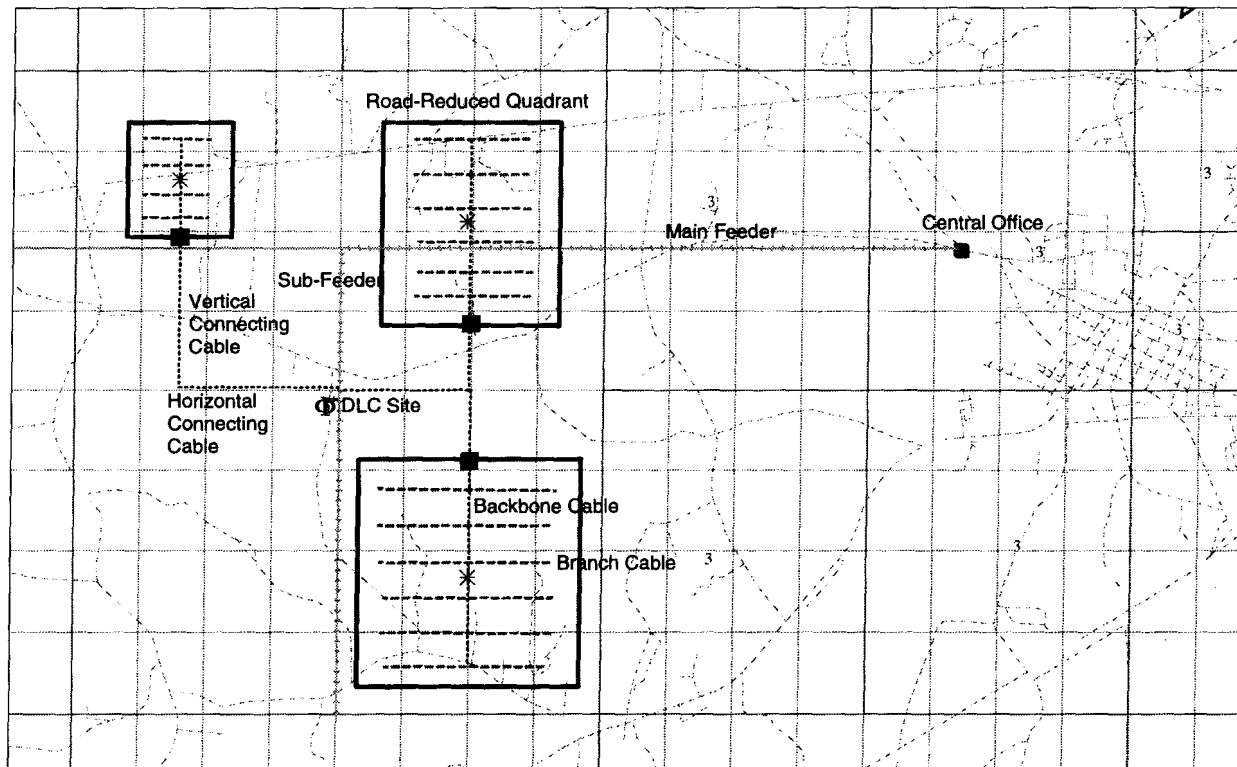


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# BCPM2

## New Distribution Engineering

Individual grid becomes new engineering area. Road centroid of grid is used to create quadrants, the area of quadrant is reduced to reflect road miles, and distribution built within this reduced area.



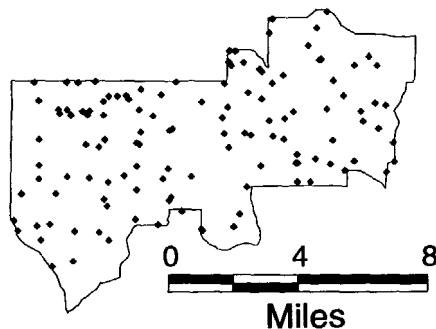
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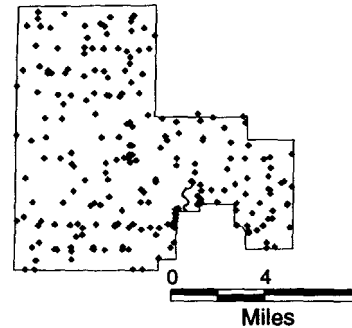
# BCPM2

## Examples of Customer Location from Satellite Maps

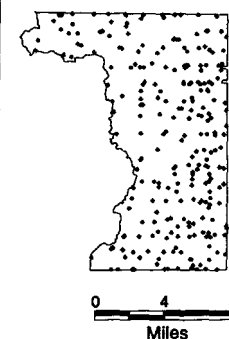
Block Group 190059605001



Block Group 191379801005



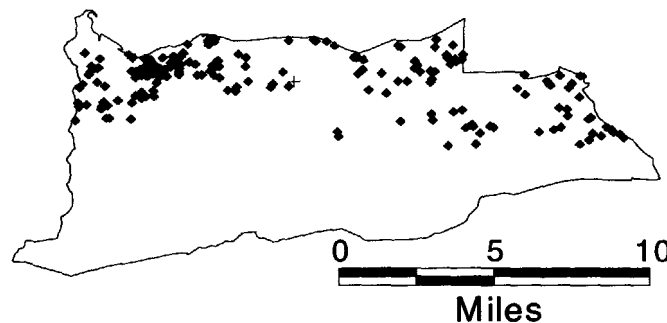
Block Group 191679704005



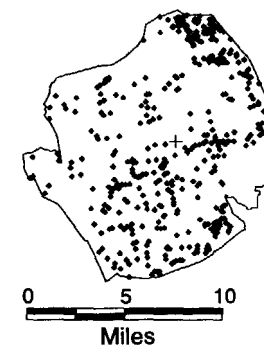
Colorado CBG 081159984001



Colorado CBG 080159606003



Colorado CBG 080719834002



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